

Patent Claims

What is claimed is

1. A sensor for determining a concentration of gas components in gas mixtures having a first measuring electrode (mixed potential electrode) which has little or no catalytic effect on the establishment of an equilibrium in the gas mixture and a second measuring electrode (equilibrium electrode) which catalyzes the establishment of an equilibrium in the gas mixture as well as a solid electrolyte that is conductive for oxygen ions arranged between the two measuring electrodes, with the two measuring electrodes being exposed to the gas mixture, characterized in that at least the first measuring electrode (14) is a cermet electrode, where at least one metal oxide component of the cermet electrode is capable of reversible incorporation of oxygen.
2. The sensor according to Claim 1, characterized in that the mixed potential electrode (14) is made largely of mixed oxides with the composition  $\text{TiNiNbO}_x$  or  $\text{FeNiMnO}_x$ .
3. The sensor according to Claim 1, characterized in that the metal oxide component is  $\text{CeO}_2$  and/or  $\text{Mn}_2\text{O}_3$ .
4. The sensor according to one of Claims 1 through 3, characterized in that gold and/or silver is added to the mixed potential electrode (14).
5. The sensor according to one of Claims 1 through 4, characterized in that the solid electrolyte that is conductive for oxygen ions is integrated into a layer (18) of the sensor (10), and this layer (18) is porous.

6. The sensor according to Claim 5, characterized in that the layer (18) contains promoters and/or catalysts at least in some areas.

7. The sensor according to one of Claims 1 through 6, characterized in that a reference electrode (26) which is exposed to a reference gas is provided for the sensor (10), and at least one layer (18, 30) made of an oxygen conducting solid electrolyte is provided between the reference electrode (26) and the measuring electrodes (14, 16).

8. The sensor according to Claim 7, characterized in that one of the measuring electrodes (14, 16) is arranged on a side of the sensor (10) facing the gas mixture, and the other measuring electrode (14, 16) is between the reference electrode (26) and the measuring electrode (14, 16) facing the gas mixture, with the porous layer (18) extending between the two measuring electrodes (14, 16).

9. The sensor according to Claim 8, characterized in that the measuring electrode (14, 16) facing the gas mixture is the mixed potential electrode (14).

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